

amendments be entered in order to simplify the issues for appeal.

35 USC §102

Claim 19 is rejected under 35 USC §102(b) as being anticipated by Baxter et al. (US 5,881,454). This claim recites the limitation, "means for aligning the electrical connector relative to the base plate" and thus invokes 35 U.S.C. § 112, sixth paragraph. Whatever the result may have been under prior PTO practice, the PTO must construe functional limitations in accordance with the corresponding structure disclosed in the specification when examining patents. In re Donaldson, 29 U.S.P.Q.2d 1845 (Fed. Cir. 1994) (en banc). Applicant's corresponding structure at the least includes an opening defined in one of a base plate and an electrical connector, wherein a guide pin on the other of the base plate and connector is received within the opening to position the electrical connector relative to the base plate. Baxter does not claim or suggest a guide pin and opening used to align the electrical connector relative to the base plate. Applicant therefore submits that amended claim 19 is not anticipated by Baxter et al., and respectfully requests for the withdrawal of the rejection under 35 USC §102(b) to claim 19.

35 USC §103

Claims 1, 2, 4-8, 10-14, 17, 18, 20 and 21 are rejected under 35 USC §103(a) as being unpatentable over Baxter et al. in view of Jabbari et al. (US 5,541,787). Claims 9 and 16 are rejected under 35 USC §103(a) as being unpatentable over Baxter et al. in view of Jabbari et al., and further in view of Cox (US 6,091,572).

Claims 1, 2, 4-8, 10-14, 17-18 and 20-21 have been rejected based on Baxter in light of Jabbari. The Examiner points out that Baxter does not disclose a plurality of guide pins protruding from the electrical connector as in claims 1, 2 and 10 nor a plurality of

openings defined in the bottom surface of the base plate. The Examiner states that Jabbari discloses, in addition to Baxter, a chamfered plurality of guide pins protruding from the electrical connector, as well as a plurality of openings defined in the bottom surface of the base plate. However, Jabbari does not disclose a plurality of openings in the bottom surface of the base plate as asserted by the Examiner. Fig. 4 of Jabbari shows openings on the surface of the base that is part of the interior of the drive. A closer examination of Fig. 4 shows the openings (76) on the inside of the drive, not an external bottom surface. This is shown more clearly in Fig. 2 of Jabbari. Claim 2 of the present application further clarifies the distinction, claiming an opening that is defined in the bottom surface of the base plate and extends vertically upward toward the top cover and where the guide pin protrudes from the electrical connector and extends vertically upward to fit within the opening defined in the base plate. Based on the factors as discussed above, it is clear that the references as combined do not disclose all of the claimed limitations.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the applied reference or combined references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art.

In this instance, the first prong has not been met, as Baxter does not provide any suggestion or motivation to modify the reference or to combine the reference teachings with those of Jabbari in order to provide for the use of a guide pin to help in the alignment of a PCBA with the base. Baxter does nothing but show a standard electrical connector attached to a PCB that in turn is attached to the base. No alignment features,

outside of the conventional use of screws, are disclosed in Baxter. It is difficult to take the minimal disclosure of Baxter and find any hint of motivation to combine it with a reference such as Jabbari to arrive at the present invention.

In Jabbari, a flexible cable connector assembly located inside the enclosure of the drive is disclosed. This assembly secures in place the headers of both the read/write circuit cable (80) and the spindle motor printed circuit cable (40). (See col. 5, lines 45-49). The header (40) supports pins that extend both above and below the plane of header (40). Jabbari discloses the use of guide ("locating") pins (72, 74) only in the most general sense, and not in an application consistent with that of a connector on a PCB being aligned with the lower portion of the base. As shown in Fig. 2, the present invention utilizes a guide pin located on the electrical connector connected to the PCBA to allow for alignment of the PCBA with the base of the drive to provide easy and accurate assembly of the respective components. (See page 8, lines 20-25). The disclosures of Baxter and Jabbari disclose disparate features which are only connected by the fact that they are both part of a disc drive.

As discussed above, Baxter doesn't provide any suggestion to take the step to combine its teachings with that of Jabbari. The two references as combined simply cannot bring one skilled in the art to the claimed invention. Applicant thus requests that the ground of rejection be withdrawn in connection with claims 1, 2, 4-8, 10-14, 17-18 and 20-21, and allow the pending claims to pass to allowance.

Claims 9 and 16 are rejected as being unpatentable over Baxter in view of Jabbari and further in view of Cox. This rejection is based on the same rationale as provided for the above-discussed set of claims. Further, the Examiner asserts that the spindle motor connector of Cox engages contact pads on the PCBA and that it would be obvious to one of skill in the art to combine the teachings of all three references. This simply is not the case. Fig. 2 of the present application illustrates an electrical connector for the spindle motor, whereby spring contacts are put into contact with a plurality of metal

pads or contacts located on the PCBA. This contact is made properly only when the PCBA is properly aligned with the base via the use of the claimed guide pins. (See page 7, lines 16-24.) In contrast, Cox utilizes a connector pin (150) that extends from the shaft (138) of the spindle motor (104). (See Col 4, Lines 59-67.) This connector pin is inserted into the connector contact assembly (160) that ultimately results in the pin coming into contact with the contact base (172). (See Col. 5, Lines 18-26, 38-55 and Figs 2, 6 and 7.)

This is yet another case of references being cobbled together to attempt to arrive at the present invention without any supporting motivation or suggestion to combine or modify. As noted in In re Dembiczak, 175 F.3d 994, 999 (Fed. Cir. 1999), “[c]ombining prior art without evidence of ...a suggestion, teaching or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat—the essence of hindsight.” As discussed above, there is no suggestion to combine Baxter and Jabbari, and the addition of Cox does not add anything to that mix. Rather, it would appear that this is an instance where the “blueprint” of the present invention has allowed for the construction of a rejection based on all three unrelated references. Thus, Applicant respectfully requests that the application be evaluated without the use of hindsight. Applicant also requests that the ground of rejection be withdrawn in connection with claims 9 and 16 and that they be allowed to pass to issue.

Conclusion

In light of the amendments and arguments set forth above, Applicant asserts that the pending claims 1, 2, 4 - 14, 16 - 23 are in condition for allowance, and thus respectfully requests for notification of the same. This is intended to be a complete response to the Final Office Action mailed November 12, 2002. The Examiner is invited to telephone the undersigned to resolve any outstanding issues.

Respectfully submitted,
Seagate Technology LLC
(Assignee of the Entire Interest)

12 February 2003
Date

Jennifer M. Buenzow
Jennifer M. Buenzow, Reg. No. 60,124
Seagate Technology LLC
Intellectual Property - SHK2LG
1280 Disc Drive
Shakopee, MN 55379-1863
952-402-3436 (telephone)
952-402-2657 (facsimile)

APPENDIX: MARKED UP CLAIMS

1. (Twice amended) A disc drive comprising:
 - a top cover;
 - a base plate attached to the top cover, ~~the base plate having threaded openings;~~
 - a printed circuit board assembly ("PCBA") attached to a bottom surface of the base plate, ~~the PCBA having oversized holes through which fasteners extend to threadably engage the threaded openings;~~
 - an electrical connector secured to an edge of the PCBA;
 - a guide pin protruding from one of the base plate and the electrical connector; and
 - an opening defined in the other of the base plate and the electrical connector, wherein the guide pin is received within the opening to position the electrical connector relative to the base plate.
2. The disc drive of claim 1 wherein:
 - the opening is defined in the bottom surface of the base plate and extends vertically upward toward the top cover; and
 - the guide pin protrudes from the electrical connector and extends vertically upward to fit within the opening defined in the base plate.
4. The disc drive of claim 2 wherein:
 - the base plate is formed from cast aluminum; and
 - the opening is formed as a cast feature of the base plate.
5. The disc drive of claim 2 wherein:
 - the base plate is formed from cast aluminum; and
 - the opening is machined into the base plate.

6. The disc drive of claim 2 wherein the electrical connector is formed from a molded plastic material and the guide pin is formed as an integral molded feature of the electrical connector.
7. The disc drive of claim 6 wherein:
the opening in the base plate comprises an elongated slot; and
the guide pin includes a chamfered tip.
8. The disc drive of claim 7 wherein:
the guide pin has a predetermined length; and
the elongated slot has a predetermined depth that is greater than the predetermined length of the guide pin to prevent the tip of the guide pin from contacting a bottom surface of the slot.
9. The disc drive of claim 8 wherein:
the bottom surface of the base plate includes a spindle motor electrical connector;
a top surface of the PCBA includes contact pads for engaging the spindle motor electrical connector; and
the predetermined length of the guide pin is sufficient to allow the tip of the guide pin to be received within the slot while the PCBA is suspended above the bottom surface of the base plate by contact between the PCBA contact pads and the spindle motor electrical connector.
10. The disc drive of claim 2 wherein:
the electrical connector includes a plurality of data pins extending laterally from a front surface of the connector; and
the guide pin is positioned adjacent a predetermined one of the data pins.

11. The disc drive of claim 2 wherein:
the base plate defines a plurality of openings extending vertically upward toward the top cover; and
the electrical connector includes a plurality guide pins extending vertically upward from the electrical connector, wherein each guide pin is received within a corresponding opening defined in the base plate to position the electrical connector relative to the base plate.
12. (Twice Amended) A method of positioning an electrical connector of a printed circuit board assembly ("PCBA") relative to a base plate of a disc drive, the method comprising steps of:
(a) inserting a guide pin formed on one of the electrical connector and the base plate into an opening formed in the other of the electrical connector and the base plate to align the electrical connector with the base plate; and
(b) ~~inserting fasteners through oversized holes in the PCBA and into corresponding threaded openings in the base plate to fasten~~ fastening the PCBA to the base plate of the disc drive while the guide pin remains within the opening.
13. The method of claim 12 wherein the guide pin is formed on the electrical connector and the opening is formed in the base plate of the disc drive.
14. The method of claim 13 further comprising a step (c) of aligning the PCBA with the base plate of the disc drive so that mounting holes formed within the PCBA are aligned with threaded openings formed in the base plate, prior to the fastening step (b).
16. The method of claim 14 wherein the base plate includes a spindle motor electrical connector and the PCBA includes contact pads for engaging the spindle

motor electrical connector, and wherein:

aligning step (c) further includes aligning the PCBA contact pads with the spindle motor electrical connector, prior to the fastening step (b); and

the guide pin has a predetermined length sufficient to allow a tip of the guide pin to be received within the opening following the aligning step (c) and prior to the fastening step (b).

17. The method of claim 14 wherein the electrical connector is formed from a molded plastic material and the guide pin is formed as an integral molded feature of the electrical connector.

18. The method of claim 17 wherein:

the electrical connector includes a plurality of data pins extending laterally from a front surface of the connector; and

the guide pin is positioned adjacent a predetermined one of the data pins.

19. (Twice Amended) A disc drive including a base plate and a printed circuit board assembly ("PCBA") attached to the base plate, the disc drive comprising:

an electrical connector attached to one end of the PCBA, the electrical connector having a plurality of data pins adapted to mate with a female connector in a computer system; [and]

means for aligning the electrical connector ~~with direct reference~~ relative to the base plate so that the data pins will be received within corresponding sockets of the female connector when the disc drive is installed within the computer system.

20. The disc drive of claim 19 further comprising means for securing the PCBA to the base plate, and wherein:

the means for securing the PCBA to the base plate are separate from the means for aligning the electrical connector relative to the base plate.

21. ~~(New)~~ The disc drive of claim 1 further comprising data pins extending from the electrical connector substantially lateral to the guide pin.

22. (New) The disc drive of claim 2 wherein:

the bottom surface of the base plate includes a plurality of threaded openings;

the PCBA includes a plurality of oversized mounting holes corresponding to the threaded openings in the base plate; and

the PCBA is attached to the bottom surface of the base plate by a plurality of threaded fasteners that extend through the oversized mounting holes while the guide pin is received within the opening.

23. (New) The method of claim 14 wherein:

fastening step (b) further comprises inserting a threaded fastener through each of the mounting holes in the PCBA and into the corresponding threaded opening in the base plate; and

the mounting holes in the PCBA are oversized relative to a shaft of the threaded fastener to prevent the threaded fastener from binding against the PCBA.